The Oasis

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ARIZONA'S ADVANTAGES.

SURFACE STREAMS & SUBTERRANEAN RESERVOIRS.

Her Mines of Water for Irrigation Better Than Her Gold Mines.

[Second Paper.]

To the Editor of THE OASIS:

DEAR SIR:—In a recent letter I wrote of the "New Domains" Uncle Sam offers to those wishing pleasant and profitable homes in the Irrigation Districts. Some further points, more in detail, may be of interest to your readers.

As a cadet at West Point the course of study gave a great interest in geology and engineering, and I have spent a good deal of my time during what might have otherwise been monotonous service in Southern Arizona military posts, in a rather comprehenaive study of the topography and possibilities of that territory. As the best and most reliable information on this part of our country is buried in the ponderous folios of the Smithsonian and the little known records of the Weather Bureau, observations made in person on the ground may be of some interest and possible value to newcomers and others. To the average tourist, hurried across the territory on the transcontinental roads through dust and summer heat, the suggestion of Arizona as a hopeful field for homeseekers might appear very amusing, but to a person who is familiar with the marvels wrought by Irrigation, and who will investigate, without prejudice, the facts about Arizona's climate and water supply, it offers as much of promise as any other part of the irrigated portion of the country, and far exceeds most of them in advantages. The large areas of good lands, FREE to homesteaders and those taking advantage of the desert land act, under the various canal systems, should be utilized, and when they are a new era will dawn on Arizona. Information on these lands can be had however by addressing the canal companies, who have water rights to sell at low rates to bring the lands under them into profitable cultivation. I wish to call attention to a NEW field of even greater promise, though little known and without an apostle (with water rights to sell) to make its merits known. It is the territory which can be irrigated by PUMPING from the subterranean reservoir caused by the flow of the Santa Cruz river into the great valley beginning at Tucson and running west to the Maricopa divide and north to the Gila river. From Arizola west, north and northeast (the junction of the Santa Cruz and Gila valleys) is a great, open plain, nowhere more than a few miles from the Southern Pacific railroad, and this plain is only a few feet above a vast subterranean supply of water gathered from the head waters and water shed of the Santa Cruz river, and from sipage from the Gila river for several miles below Florence. The Santa Cruz waters sink into the sands at the upper end of the plain at Rillito and are saved. The soil of this plain is of vast depth, (and rock is rarely found above the water level, and then only near the rim of the plain) being the accumulation of long ages of erosion of mountains around, washings from which have gradually filled in what was, probably once a deep arm of the sea—subsequent volcanic action has CLOSED THIS OUTLET (in the region of a north and south divide west of Maricopa), making a subterrancan reservoir of unprecedented size and ACCESSIBILITY, from which an inexhaustible supply may be drawn for irrigation.

The plain itself is perfectly adapted to irrigation, having a very gentle slope of six to eight to the mile to the north and west from Arizola, and is composed of the finest body of orchard and agricultural land in the world. And the land is almost all of it ABSOLUTELY FREE!!! The water below varies from ten to twelve feet at Sacaton, where the subterranean reservoir overflows so to speak (by springs flowing into the Gila river) to thirty feet at the half way house from Arizola to Florence; and even at Arizola the general level of this vast reservoir is only about fifty feet below the surface. I I have visited wells at many points in the valley and along the rise of the valley towards Tucson, and the depth of the surface of this subterranean lake corresponds so closely with the rise of the land as to prove that its surface is practically level from Maricopa to Rillito: some NINETY MILES. A lake ninety miles long and twenty to fifty miles wide to draw upon, FREE LAND, perfectly adapted to irrigation, and a climate making possible the choicest fruits, nuts and raisins, what more is necessary? A live, enterprising person (man or woman) and a power and pump to lift the water.

"Ah! there's the rub" I hear you say—"power and pump to lift the water!! This must be very expensive!" Not so, however, for powers and pumps can be installed to pump water for even forty acres at less cost than the water rights for that amount of land, and can be run at less cost per annum than the usual $1,25 per acre for "annual water rent" paid the canal companies.

I have been studying on this matter for a year or so, to solve the problem of a pumping plant which a man of small means can put in on a small fruit orchard (say forty acres, which will be found LARGE enough when once in bearing to tax the energies of a good sized family) and run when water is needed without having to depend on the canal managers, and which shall still not cost so much to run as the "annual water rental." There are plenty of sources of cheap power that can be used at Arizola, such as windmills, horse powers and GOOD vapor engines. The trouble has only been to find the right pump for utilizing these powers. On a recent visit to the World's Fair I found the pump which fills every need. The properties of a good pump for irrigating (by wind power when the wind blows and by horse power or vapor engine when th wind does not blow,) are: first, to pump enough water, second; to be cheap at first cost; third, to pump with efficiency when the mill runs slow or fast; fourth, to be simple and easy to keep in order; fifth, to give a column of water of continuous flow to avoid the great loss of power from starting the the whole column of water at each stroke, as is necessary with plain lifting pumps. Every engineer will recognize the difficulty of filling ALL these requirements in one pump, but every fair minded engineer will acknowledge upon investigation that the triple plunger pumps (made in San Francisco by F. W. Krogh & Co., and at Seneca Falls, N. Y., by the Gould Manufacturing Co.) da meet each of these requirements, and by a still simpler, cheaper and more efficient pump of the improved rotary type, made by Turner Machine Co. of Brooklyn, New York—capacity ten thousand (10,000) gallons PER HOUR costs $200 laid down at Arizola.

This is unsolicited testimony, as in my study of the problem I have secured catalogues and prices from all the leading pump makers in the country and give you the result of the most thorough, impartial investigation. I have no "axe to grind," and this writing is unknown to the makers of these pumps.

Now for the power:

1st. WINDMILLS. The Weather Bureau at Washington has kindly supplied me with data relating to wind movements which are of great importance in relation to our problem of cheap powers for pumping water from this subterranean reservoir so bountifully filled and kept from evaporation by nature. The winds at Tucson, Arizola, Florence and Maricopa are unique, rising with the sun and growing stronger as the day progresses till sundown, when they gradually and generally cease to blow. The average velocity is six or seven miles per hour, in the forenoon and eight to ten in the afternoons. Occasionally higher winds occur but not of a destructive nature, as the hundreds of wind mills running in these localities can testify. A sixteen foot steel windmill of the geared type (giving a belt power) will furnish in these winds an average power daily equal to that of three or four horses working ten hours a day, without attendance or cost beyond the oil for lubricating. This will work a pump of the kinds named and of capacity to deliver one hundred thousand gallons during EACH DAY. This is enough for 160 acres. Mills and forty foot towers can be put up at Arizola for $200.

2d. HORSE POWERS, to be worked by two or four horses or mules can be laid down at Arizola from Chicago for $100

3d. VAPOR ENGINES of reliable, and tested and guaranteed capacity, giving about four (4) actual horse power (any capacity up to fifty horse power may be had) can be laid down at Arizola from Philadelphia, Chicago, Kansas City or San Francisco for about $325.00 to $350.09, and will work steadily without danger and WITHOUT ATTENDANCE, using gasoline, at a cost per ten hours of FIFTEEN CENTS per horse power. This is the CHEAPEST RELIABLE source of power for daily use. Many thousands are in constant use for all purposes, at a cost of ten or twelve cents per horse power per day of ten hours (near oil supply).

Thus your homesteader could after digging his well, put in a pump and sixteen foot wind mill for ($200 plus $150 plus $50 for pipes and belts) $400, which is cheaper than water rights for forty acres. He could add a four horse power for use in intervals of occasional light winds for $100 more, or he could put in a pump and gasoline engine for $600. Each one of these outfits will, by regular use, irrigate 160 acres.

The canal now at Arizola cannot supply one HUNDREDTH PART of this vast plain with water, and I do not intend to create any idea of antagonism to the canal system, which is excellent and has a splendid storage reservoir, but to open the eyes of would be homeseekers to take advantage of these beautiful fruit lands outside of the canal's territory. This would help rather than hurt the canal, and Arizola as a distributing point would also profit greatly.

This is not the only pumping irrigation district in Arizona. The Spulphur Spring valley, the San Simon valley; the White River basin and Sanz in Cochise and Graham counties are similar in character, but the waters are deeper, the altitude greater and the climate less favorable for delicate fruits, like almonds, figs, dates, olives and citrus fruits.

Pumping for irrigation is not new, having been practiced for centuries with crude appliances in oriental irrigation regions—and now with modern appliances in parts of California, New Mexico and Arizona. Yet now, right in sight of Arizola, lies the finest field, as yet undeveloped, in the world for pumping irrigation, by virtue of its FREE LANDS, readily accessible water, healthy and suitable climate and location along and nearness to a great main through line of railroad.

If these facts were generally known there would be a rush of enterprising homeseekers for these free lands like to Oklahoma, and your town would reflect the prosperity of a region equal to any in California and superior to it in point of healthfulness of climate; and I have thought it only fair, when other regions are boasting of and booming their advantages, to offer you this unsolicited testimony about one of Arizona's available advantages for homeseekers. I spent two of the pleasantest years of my life in Southern Arizona, and the study of her resources has been a matter of recreation, and a continual surprise at their extent and astonishment at the general ignorance concerning them.

Light on her merits is all that Arizona needs.

R. B. BRYAN,
Lieutenant 2d U. S. Cavalry.

JEFFERSON BARRACKS, Mo.,
October 13, 1893.

Broom Corn.

Franklin Johnson, who has a farm just south of Mesa City, sent to the Gazette yesterday a splendid sample of broom corn taken from the second crop, and grown since the last week in August. The young man planted the first crop in May. During the last week in August he cut the crop off and turned the water on the stubble. From this one wetting the second crop grew and a finer lot of cane was never seen even in the old state of Missouri. Mr. Johnson has ten acres of this cane and says he will donate enough to make brooms to sweep every opponent of statehood from the face of the earth.—[Arizona Gazette.

At a shop on Broadway, New York, a royal crown can be purchased for $7. They run up to double that sum the highest priced being $15—but the latter amount will bring a gorgeous affair all incrusted with precious gems. Queen's tiaras come cheaper, and $8 will buy a very decent one. These royal ornaments are for use on the stage exclusively. Seen across the footlights they are as effective as if the jewels were real and the gold 18-karat instead of brass gilded. The gems are of colored glass except the diamonds, which are of plain cut glass, and cost seventy-five cents a dozen.